

ITEM 1: STEAM REDUCING STATION SAFETY AND RELIEF VALVES OVERHAUL TEST AND SET

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1 SCOPE

The intent of this item is to clean, inspect, overhaul, pressure test, and set the specified steam safety and relief valves.

Government Furnished Property: None

2 REFERENCES

Coast Guard Drawings:

282-WMEC 545-14, Rev M; Diagram Ships Heating & Aux _Y Steam System

Applicable Documents:

The Society for Protective Coatings SSPC-SP 3, 11/1/2004; Power Tool Cleaning

Naval Ship's Technical Manual (NSTM) Chapter 505, Rev 3; Piping Systems

Naval Ship's Technical Manual (NSTM) Chapter 635, Rev 3; Thermal, Fire and Acoustic Insulation

3 REQUIREMENTS

3.1 GENERAL

3.1.1 In the presence of the Coast Guard Inspector, inspect and test all equipment and systems that will be disturbed during the performance of this work to document their original condition. Submit a Condition Found Report for all such equipment and systems noting any existing (pre-work) discrepancies in their operation.

3.1.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems.

3.1.3 Interferences – The Contractor shall remove, modify, or protect all interferences to the work. All interferences that are removed shall be tagged to facilitate proper reinstallation. Ensure that all removed equipment is kept in a clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measures taken for equipment not removed.

3.2 STEAM RELIEF VALVE OVERHAUL

Note: Isolation valves shall be closed, locked with wire, and tagged "DO NOT OPEN". Ensure all pressure is relieved prior to removing relief valves.

3.2.1 The table below lists the relief and safety valves to be overhauled, inspected, and tested.

Service/Description	Size (inches)	System Pressure	Set Pressure	Location
Distiller Sterilizer	1 ips		40 psig	

Red. Sta. Relief				
Distiller Heater Red. Sta. Relief	2 ips		40 psig	
Laundry Red. Sta. Relief	1 1/2 ips		114 psig	
Service Steam Red. Sta. Relief	4 ips		58 psig	
A/C & Steam Red. Sta. Relief	4 ips		42 psig	

NOTE: Contractor can opt to renew, if cost is less compared to the repair and reset of valves. Verify set pressures with the referenced drawing.

3.3 VALVE REMOVAL

3.3.1 Prior to removal, identify, and tag all valves listed in Table 3.2.A with location and service, and system working and relief pressures. The Coast Guard Inspector shall assist in locating the valves.

3.3.2 Disconnect any interferences and necessary piping, and remove all valves. Install blank flanges with gaskets over the pipe openings, securing with at least four bolts, 90 degrees apart. Pipe plugs or other closures may be used to prevent contamination of the system, depending on the valve removed. Blank flanges shall be at least 1/4" thick.

3.4 VALVE OVERHAUL

3.4.1 At a suitable testing facility, clean, inspect, overhaul, pressure test, and set each valve to the lifting pressure indicated in the table above.

NOTE: Any of the listed valves may be renewed versus overhauled. The choice between overhaul versus renewal is solely with the Contractor and should be based on his cost estimate for each alternative.

3.4.2 Inspect all valve openings for obstructions and damage to the valve seat, disc, and body.

3.4.3 Clean all valves of foreign matter including, but not limited to, dirt, scale, rust, grease, and marine growth. Clean valve discs and seats to bright metal without injuring parts.

3.4.4 Check valve stems for trueness and realign them as necessary. Straighten stem to within 0.002 inch total indicator reading, as required. Polish stem to a 32 Root-Mean Square (RMS) finish and remove raised edges and foreign matter.

3.4.5 Machine, grind-in, or lap and spot-in metallic disc to seat to obtain a 360 degree continuous contact between the disc and seat. If additional work is required to achieve a continuous seat, such as building up by welding, submit a CFR. Verify proper valve seating by spotting-in with prussian blue in the presence of the Coast Guard Inspector.

3.4.6 Clean, chase, and tap valve stem threads and exposed threaded areas.

3.4.7 Dress and true gasket mating surfaces.

3.4.8 Submit a Condition Found Report.

3.4.9 Reassemble all overhauled valves. Remove all packing and renew it in kind with new packing of the same size and type as that removed.

3.4.10 Renew seals, gaskets, packing, and disc nuts in kind and in accordance with manufacturer's specifications.

3.5 VALVE PRESERVATION

3.5.1 Power tool clean valve bodies to SSPC SP-3, a tight paint film with no loose rust. Solvent wipe the valves and paint with two (2) coats of heat resistant aluminum paint prior to reinstallation.

3.6 VALVE TESTING

3.6.1 In the presence of Coast Guard Inspector, shop test and set each new and overhauled valve to the correct lifting pressure as specified in the applicable system schematic drawing or in the table above. Using steam as a test medium (if water is not detrimental to the valve components, otherwise utilize the system fluid or other suitable medium), simulate system temperature and pressure, and bring the test pressure to 10 psi below the relief or safety valve operating pressure. Slowly raise the test pressure to the set relief or safety pressure setting, and record the pressure where the valve provides relief or the safety valve lifts. Additional information about relief valve testing can be found in paragraph 505-9.18 of NSTM Chapter 505.

NOTE: During testing and relief valve setting, do not allow the test pressure to exceed the relief valve set point by more than 10 psi for longer than a few seconds.

3.6.2 Reset and retest the valve if the valve does not function properly. If Safety or Relief valves are found to require additional repairs or renewal, submit a CFR.

3.6.3 Provide the Coast Guard Inspector with Condition Found Report documenting the test pressure and relief pressure (lifting pressure) for each valve. Affix a metal tag (brass plate), using lock wire, to each valve showing the following information:

Ship name and hull number.

Valve number or identification.

Valve lifting pressure.

Valve operating pressure.

Date valve tested and set.

Name and location of repair facility (Contractor).

3.7 VALVE INSTALLATION

3.7.1 Upon completion of shop work, remove blank flanges, pipe plugs, etc. and clean, dress, and true gasket mating surfaces. Install the new and overhauled valves in their correct locations aboard the ship along with any removed piping or interferences in the presence of the Coast Guard Inspector. Renew gaskets and seals in kind.

3.7.2 Remove lock wires and tags, slowly open isolation valves, and inspect each relief valve for leaks with the affected system at normal operating pressure and temperature. No leakage is allowed. Correct any deficiencies found and retest. The Contractor is responsible for correcting any leaks discovered in the disturbed working areas.

3.7.3 The Contractor shall submit a Condition Found Report stating the results of the valve installation and inspection.

3.8 LAGGING PAD RENEWAL

3.8.1 Remove the lagging pads on each of the valves listed in this work item.

3.8.2 Using the old lagging pads as a template, fabricate and install new lagging pads on each of the valves in this work item. Lagging pads are to be fabricated as described in NSTM Chapter 635.

3.9 RESTORATION

3.9.1 Prepare and paint all new and disturbed surfaces.

3.9.2 Restore all interferences to their original condition in accordance.

3.9.3 Clearing Tags – Restore all affected systems and clear any remaining tags.